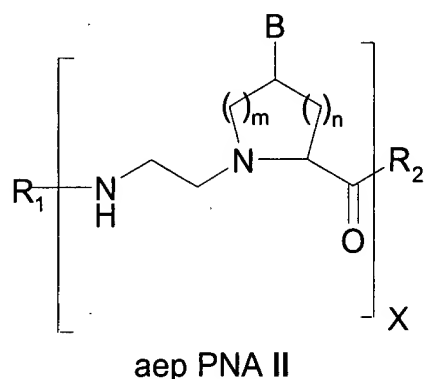


IN THE CLAIMS:

The following listing replaces all prior versions of the claims.

1-13. (Canceled)

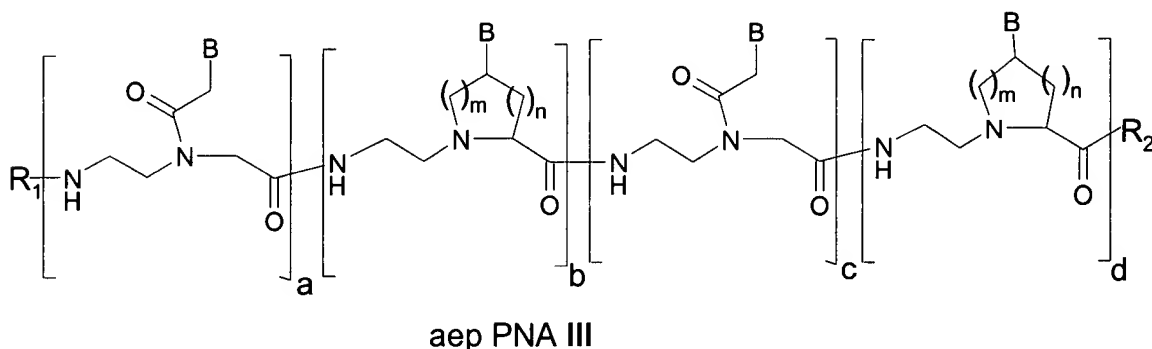
14. (Previously presented) A compound having the formula



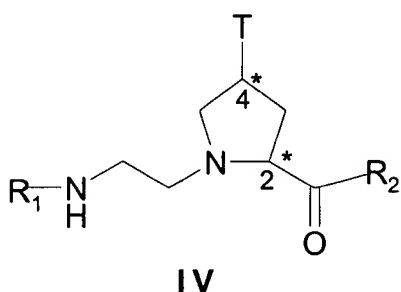
wherein

- m and n are 1 to 2 and x = 1-20;
- each of B is independently selected from the group consisting of H, HO, NH<sub>2</sub>, naturally occurring nucleobases adenine (A), thymine (T), cytosine (C) and guanine (G), non-naturally occurring nucleobases, DNA intercalators, heterocyclic moieties and reporter ligands;
- each chiral monomeric unit is independently selected from the four possible diastereomers; and
- R<sub>1</sub>=H or Fluorophore or Biotin, R<sub>2</sub>=OH or NH(CH<sub>2</sub>)<sub>2</sub>COOH or NH(CH<sub>2</sub>)<sub>3</sub>NH(CH<sub>2</sub>)<sub>4</sub>NH(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub>.

15. (Currently amended) A compound having the formula



that is heteropolymeric aepPNA III comprising non-chiral aeg unit of aminoethylglycyl PNA I and chiral aep monomeric unit IV



wherein

- T is a nucleobase;
- each chiral monomer unit is independently selected from the four possible diastereomers;
- a, b, c, d, m, n are integers with independent values in the range 1 to 10;
- R<sub>1</sub> is H, COCH<sub>3</sub> or L (L = dansyl, carboxyfluoresceinyl);
- R<sub>2</sub> is OH, NH<sub>2</sub>, NHCH<sub>2</sub>CH<sub>2</sub>COOH, or NH(CH<sub>2</sub>)<sub>3</sub>NH(CH<sub>2</sub>)<sub>4</sub>NH(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub>; and
- each of B is independently selected from the group consisting of H, HO, NH<sub>2</sub>, naturally occurring nucleobases, non-naturally occurring nucleobases, DNA intercalators, heterocyclic moieties and reporter ligands.

16. (Currently amended) The compound as claimed in claim 15, wherein

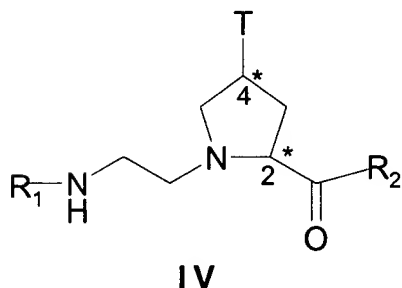
- i) m=n=1, B=T, R<sub>1</sub>=H, R<sub>2</sub>= NH(CH<sub>2</sub>CH<sub>2</sub>)COOH, a=7, b=1, c=d=0;
- ii) m=n=1, B=T, R<sub>1</sub>=H, R<sub>2</sub>= NH(CH<sub>2</sub>CH<sub>2</sub>)COOH, a=c=3, b=d=1;

- iii)  $m=n=1$ ,  $B=T$ ,  $R_1=H$ ,  $R_2=NH(CH_2CH_2)COOH$ ,  $a=b=c=d=1$ , repeating and wherein chiral monomeric units a, b, c, and d occur twice in that order;
- iv)  $m=n=1$ ,  $B=T$ ,  $R_1=H$ ,  $R_2=NH(CH_2CH_2)COOH$ ,  $a=b=c=0$ ,  $d=8$ ; and
- v)  $m=n=1$ ,  $B=T$ ,  $R_1=H$ ,  $R_2=NH(CH_2CH_2)COOH$ ,  $a=d=0$ ,  $b=1$ ,  $c=7$ .

17. (Previously presented) The compound as claimed in claim 15, wherein said compound is synthesized by adaptation of standard solution phase peptide synthesis procedures or standard solid phase peptide synthesis procedures.

18. (Previously presented) The compound as claimed in claim 16, wherein said compound is synthesized by adaptation of standard solution phase peptide synthesis procedures or standard solid phase peptide synthesis procedures.

19. (Previously presented) A monomer precursor-synthon of formula IV



wherein

- $R_1=H$ , Boc or Fmoc;
- $R_2=OMe$ ,  $H$ ,  $OEt$  or  $OBenzyl$ ;
- chirality at positions 2 and 4 results in four diastereomers ( $2S,4R$ ), ( $2R,4S$ ), ( $2S,4S$ ) and ( $2R,4R$ ); and
- $T$  is a nucleobase.

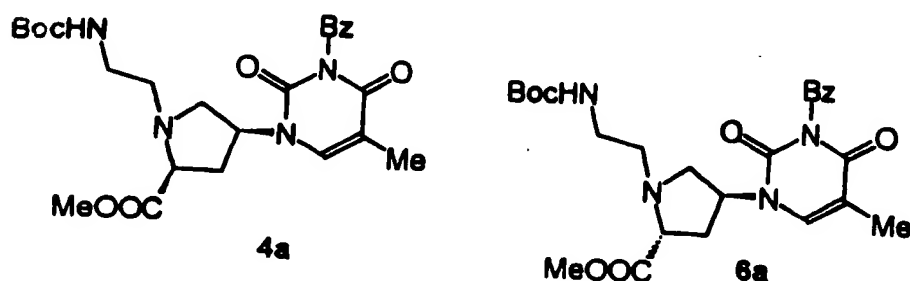
20. (Previously presented) The monomer precursor-synthon as claimed in claim 19 wherein  $T$  is a naturally occurring nucleobase.

21-23. (Canceled)

24. (Previously presented) A pharmaceutical composition comprising a compound according to claim 14, along with any other pharmaceutically effective agent.

25. (Previously presented) A pharmaceutical composition comprising a compound according to claim 15, along with any other pharmaceutically effective agent.

26. (Previously presented) A process for preparing compounds of formulae 4a and 6a



comprising the steps of

- A. a) synthesizing (N-Boc)-2-aminoethanol from 2-aminoethanol;  
b) synthesizing (N-Boc)-2-aminoethylbromide from (N-Boc)-2-aminoethanol;
- B. N-alkylation of 4-hydroxyprolinemethylester with (N-Boc)-2-aminoethanol prepared as in step A;
  - (i) alkylation of 4*R*-hydroxy-2*S*-prolinemethylester with (N-Boc)-2-aminoethylbromide to obtain 1-(N-Boc-aminoethyl)-4*R*-hydroxy-2*S*-prolinemethyl ester;
  - (ii) alkylation of 4*R*-hydroxy-2*R*-prolinemethylester with (N-Boc)-2-aminoethyl bromide to obtain 1-(N-Boc-aminoethyl)-4*R*-hydroxy-2*R*-prolinemethyl ester;
  - (iii) alkylation of 4*S*-hydroxy-2*R*-prolinemethylester with (N-Boc)-2-aminoethyl bromide to obtain 1-(N-Boc-aminoethyl)-4*S*-hydroxy-2*R*-prolinemethylester;
  - (iv) alkylation of 4*S*-hydroxy-2*S*-prolinemethylester with (N-Boc)-2-aminoethyl bromide to obtain 1-(N-Boc-aminoethyl)-4*S*-hydroxy-2*S*-prolinemethylester;

C. Mitsunobu reaction of compounds 1-(N-Boc-aminoethyl)-4*R*-hydroxy-2*S*-prolinemethyl ester and (N-Boc)-2-aminoethanol prepared according to steps B(i) and B(ii) with N<sup>3</sup>-benzoylthymine, to produce monomer synthons of formulae 4a and 6a, respectively.